



E-PoS 1000 Tec P3 System

CHAPTER 1 INTRODUCTION

Introduction

This manual is suitable for E-PoS 1000 Tec P3 Mini Desk Top PC.

The motherboard is all-in-one designed with 4 x AGP VGA, Audio sound and 10/100M Network chip build-in. This motherboard is design for both Mini Desk Top PC, which is a new designed with ATX structure.

CHAPTER 2 GETTING STARTED

On receiving your E-PoS 1000 Tec P3 Slim Size or Mini Desk Top PC, please check the following items:

1. What's included

- * Slim size or mini desk top case with ATX power supply installed.
- * The Socket 370 all-in-one ATX type motherboard pre-installed inside the slim size or Mini Desk Top case.
- * 2 slots PCI/ISA mixed Riser card pre-installed for E-POS 1000 TEC and 4 Slots PCI/ISA mixed riser card pre-installed for E-POS 1000 TEC
- * One 40 pins flat cable for HDD and CD-ROM
Pre-installed on the all-in-one ATX motherboard.
- * One 34 pins flat cable for FDD pre-installed on the all-in-one ATX motherboard.
- * One 10 pins flat cable for COM 1 port pre-installed.
- * One 10 pins flat cable for COM 2 port pre-installed.
- * One 10 pins flat cable for COM 3 port pre-installed. (optional)

- * One 10 pins flat cable for COM 4 port pre-installed. (optional)
- * CPU and cooling fan with heat sink pre-install on the top of CPU. If you have ordered the system with CPU together.
- * 168 pins DIMM memory from 32MB up to 1GB, if you have ordered the system with main memory together.
- * One set screw pack which including the following:
 - a. M3 X0.5 screws 12 pcs for FDD/CD-ROM and card installation.
 - b. M3 X1 screws 4 pcs for HDD installation.
- * User's manual 1 pcs.
- * Power cord.
- * CD-ROM disk software driver

2. **Checking the AC input voltage before turn on the power switch.**

The AC input voltage can be switch from 110 Volts to 230 Volts or from 230 Volts to 110 Volts. The AC input voltage convert switch is located on the back side of the power supply. Please double check whether the AC input voltage is matching at your country or not. If it is the wrong voltage, please make the correct setting of this switch.

3. **Installing the CPU, if you order the system without CPU installed.**

The CPU type is socket 370 and it can be either Intel Tualatin Celeron speed up to 1.3Ghz or higher and Intel Tualatin Pentium III CPU speed up to 1.26Ghz or higher available in the market. Or Via C3 socket 370 CPU up to 1 Ghz or higher available in the market. Choose your CPU type and speed and make the correct CPU bus speed setting at SW1. Please refer to this manual on page NO.16 for the right CPU bus speed setting, please also make sure the correct CPU pin 1 direction before insert the CPU into the CPU socket. Please also install the CPU cooling fan on the top of the CPU.

4. **Installing the memory DIMM module, if you order the system without memory DIMM module installed.**

You can install the 168 pins DIMM memory module into location DIMM1 and DIMM2 on your motherboard. Since 168 pins DIMM module is 64 bits wide, therefore 1 piece of DIMM module may match a 64 bits system , the available memory module from the market will be from 32 MB up to 512MB , so , the maximum memory size will be up to 1 GB for total 2 Dimms installed.

5. **Installing the hard disk, if necessary.**

Please refer to the step 8 of the Mini Desk Top PC system installation at page No. 7 of this manual for detailed hard disk installation.

6. Installing the floppy disk, if necessary.

Please refer to the step 9 of the Mini Desk Top PC system installation at page No. 8 of this manual for detailed floppy disk installation.

7. Installing the CD-ROM drive, if necessary.

Please refer to the step 10 of the Mini Desk Top PC system installation at page No. 8 of this manual for detailed CD-ROM drive installation.

Please refer to page No. 11 of this manual for the slim CD-ROM installation for E-POS 1000 TEC slim size PC.

8. Please refer to chapter 6 of this manual for the detailed BIOS CMOS SETUP.

9. Please Refer to chapter 7 for software driver installation for Via 4 in 1 driver , 4 x AGP VGA driver , 10/100 Mbit Lan driver and audio driver.

10. Installing the I/O card, if necessary.

The E-POS 1000 TEC Slim Size PC has 2 I/O slots free and the E-POS 1000 TEC Mini Desk Top PC has 4 I/O Slots free for you to install any I/O cards. Please refer to step 19 of the Mini Desk Top PC system installation at page No. 9 of this manual for detailed I/O card installation.

CHAPTER 3 SPECIFICATION

3.2 E-PoS 1000 Tec PC specification

Case size : 32cm (w) x 33cm (L) x 8cm (H)

Power supply : Internal power supply 235 watts 110V/230V switchable.

Riser card : 2 slots PCI /ISA mixed.

Drive bay : 1 x 3 1/2 " HDD + 1 x 3 1/2 " FDD or HDD +

1 x slim CD-ROM.

Front panel: USB 1.1 x 2 ports (share the same port as the back side) or

USB 2.0 x 2 ports (optional) and sound for Line out , Mic.

Power switch , Reset switch , Power LED , HDD LED , Lan LED , sleep LED

Back connector: Lan ,VGA , Printer , COM 1,2,3,4 , (COM 3 & 4 optional) , PS/2 keyboard , PS/2 mouse , USB 1.1 x 2

Following are the free slots condition with all the drives installed:

a. One 3.5" HDD + one 3.5" FDD or HDD + one slim CD-ROM installed + 4 COMs installed, then you still have one PCI / ISA slot free.

b. One 3.5" HDD + one 3.5" FDD or HDD + one slim CD-ROM installed + 2 COMs, then you still have two PCI /ISA slots free.

3.3 Motherboard Engineering Specifications

Product Name	E-POS 1000 TEC
Form Factor	Customer Size
CPU Type	Socket 370 type , will support Intel's Tualatin Pentium III & Celeron CPU and Via C3 CPU
CPU Voltage	1.1V~1.85V auto adjustable by CPU
System Speed	FSB speed 66/100/133 Mhz for Intel Pentium III CPU up to 1.26Ghz FC - PGA 2 (Tualatin) or Intel Celeron CPU up to 1.3Ghz FC- PGA 2 (Tualatin) or Via C3 CPU up to 1 Ghz.
CPU External Clock	66/100/133Mhz
Chipset	VIA Prosavage TwisterT(PN133T)+VT82C686B Chipset North Bridge:VT8606 552 PIN PBGA South Bridge:VT82C686B 352 PIN BGA
BIOS	Award BIOS Support ACPI Function
Cache	128K Level1 /64K Level2 (CPU integrated)
Digital I/O (optional)	4 IN / 4 Out (TTL Level) optional
DiskOnChip	Supports M-system 2MB~288MB DiskOnChip flash disk
Watchdog Timer (optional)	16 Level (optional)
UART/16550A (4Ports) (COM 3 & 4 optional)	COM1/3/4:RS232 w/16 Byte FIFO COM2:RS232/422/485 w/16 Byte FIFO(jumper selectable) Jumper selectable for +5V or + 12V at pin 9 of DB9 for COM 1/2/3/4
On Board VGA	VT8606 with Integrated Savage4 AGP4x Graphic 8/16/32 MB frame buffer using system memory Integrated 2-channel 110MHZ LVDS interface
LCD interface (optional)	Support 36 Bit TTL LCD Interface and 2 channel LVDS
LAN	Realtek 8139C (8139C+) Single Chip Ethernet Controller 10/100 Base T support , RJ -45 port
Sound	VT82C686B Built-in Sound controller + AC97 Codec VIA VT1612A (Line-out,Line-in,Mic.)
Memory type	2 x 168-Pin DIMM 3.3V Max. up to 1GB Support PC100/PC133 DIMM Module
SUPER I/O	VIA VT82C686B: IrDAX1 Parallel x1, Serial*2, FDC 2.88MB (3 Mode support), Hardware monitor(3 thermal inputs,4 voltage monitor inputs, VID0-4,2 fan input WINBOND 83877:Serial*2 for COM 3 & 4 (optional)
RTC/CMOS	VT82C686B Built-in
Battery	Lithium Battery
Keyboard Controller	VT82C686B
EPP/ECP	Yes
Local bus IDE(44 pin)	VT82C686B built-in , IDE1,2 (Ultra DMA 33/66/100)
USB 1.1 x 2 ports	2 ports, transfer rate up to 12Mb/s , in the back panel (and shared in the front panel for E-POS 1000 TEC)
USB2.0x2 ports(optional)	2 ports , transfer rate up to 400Mb /s , optional for E-POS 1000 TEC in the front panel and optional for E-POS 1000 TEC in the back side (from the bracket)
Expansion Slot	EISA Slot (PCI/ISA)
Board Size	Customer Size

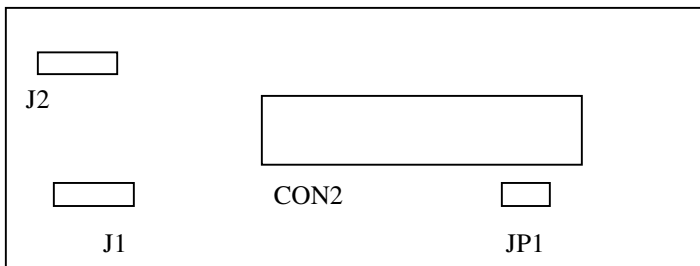
CHAPTER 4 INSTALLATION

4.2 E-POS 1000 TEC Slim Size PC System installation

The E-POS 1000 TEC Slim Size PC system installation procedure will be similar to the E-POS 1000 TEC Mini Desk Top PC. Except the following devices need to do the special care.

1. Slim CD-ROM installation

The slim CD-ROM needs to install a small PC board which converts the IDE interface of the slim CD-ROM to the standard IDE interface of the motherboard. Following is the block diagram of this converter board.



- J2 : This connector is to connect the audio signal to the sound card.
- J1 : This connector is to connect the power supply for the slim CD-ROM.
- CON2 : This connector is to connect the IDE interface to the motherboard.
- JP1 : This jumper is for master/slave select of the slim CD-ROM. For different brand of the slim CD-ROM, The master /slave selection method is different, so you have to check with the supplier how to set the slim CD-ROM to the slave device. Because if you installed the hard disk with the slim CD-ROM together with the same IDE cable that you have to set the slim CD-ROM to the slave condition.

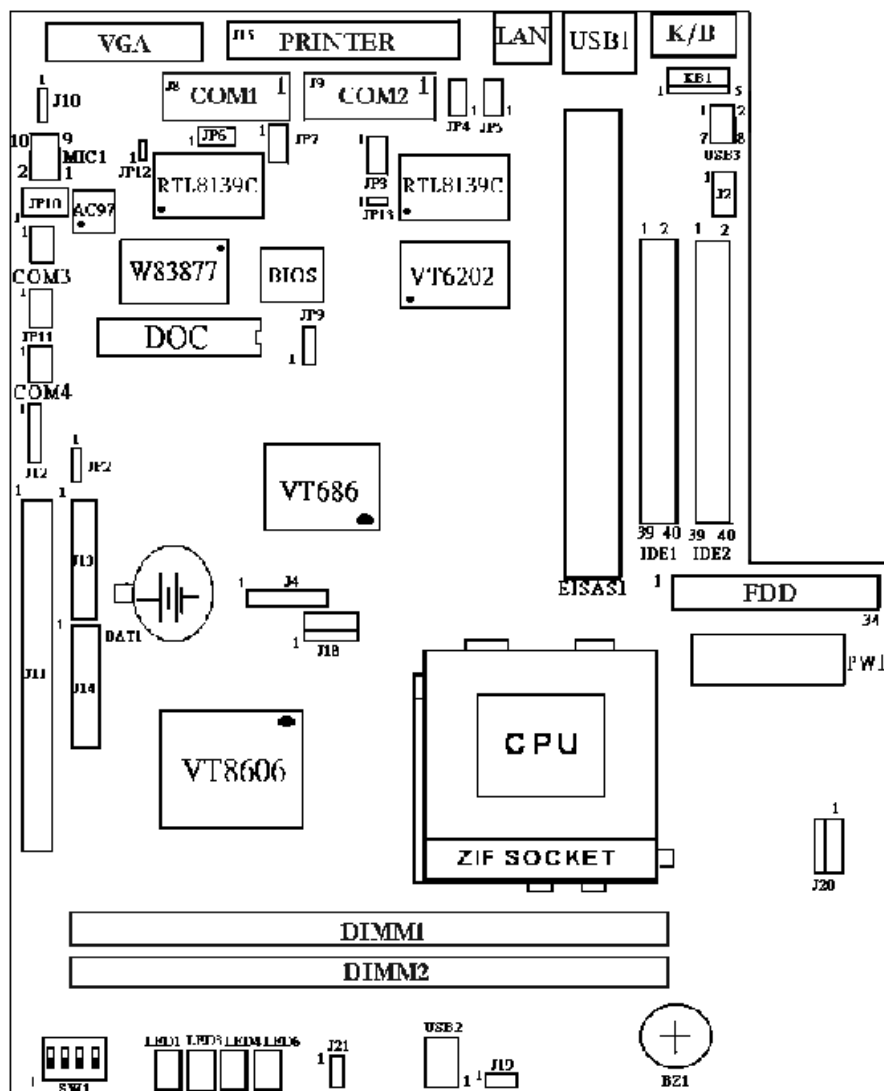
Choose your slim CD-ROM vender and set the slim CD-ROM to the slave condition. Connects all the cables to J1, J2 and CON2 connectors.

Step1. Installing the slim CD-ROM mounting bracket by screw in the 2 screws, on the HDD/FDD/CD-ROM holding bracket.

Step2. Screw in the 2 M2 screws between the slim CD-ROM mounting bracket and the converter board.

CHAPTER 5 Motherboard diagram and jumper setting

5.1 E-POS 1000 TEC Motherboard Diagram & jumper location



5.2 E-POS 1000 TEC ALL-IN-ONE M/B

Jumper setting

1. JP2 = CMOS jumper select

1-2 = Normal (Default)

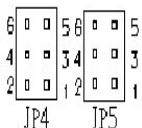
2-3 = Clear CMOS

2. JP3, JP4, JP5: RS232/422/485 (COM2) Selection

COM1 is fixed for RS-232 use only.

COM2 is selectable for RS232, RS-422 and RS-485.

The following table describes the jumper settings for COM2 selection.

 JP4 JP5	COM2 Function	RS-232	RS-422	RS-485
	Jumper Setting (pin closed)	JP5: 3-5 & 4-6	JP5: 1-3 & 2-4	JP5: 1-3 & 2-4
 JP3		JP4: 3-5 & 4-6	JP4: 1-3 & 2-4	JP4: 1-3 & 2-4
		JP3: 1-2	JP3: 3-4	JP3: 5-6

3. JP6 = Power pin select for COM1 at pin 9 of DB9

1-2	+5V
3-4	Normal
5-6	+12V

4. JP7 = Power pin select for COM2 at pin 9 of DB

1-2	+5V
-----	-----

3-4	Normal
5-6	+12V

5. JP10 = Power pin select for COM3 at pin 9 of DB9

1-2	+5V
3-4	Normal
5-6	+12V

6. JP11 = Power pin select for COM4 at pin 9 of DB9

1-2	+5V
3-4	Normal
5-6	+12V

7. JP9 = DOC (Disk On Chip) address select jumper

1-2 : D0000 - D7FFF

2-3 : D8000 - DFFFF

8. JP12 : Lan 1 Enable /Disable jumper

ON = Enable Lan 1

OFF = Disable Lan1

9. JP13 = Lan 2 Enable /Disable jumper

ON = Enable Lan 2

OFF = Disable Lan 2

10. SW1: CPU Bus Speed Selector

Bus Speed	SW1	Switch Setting
66MHz		off off on on
100MHz		off off off on
133MHz		off off off off

11. J2 = Digital I/O connector (4 in & 4 out)
12. J4 = I/R connector
13. J8 = COM 1 connector
14. J9 = COM 2 connector
15. COM3 = COM 3 connector
16. COM4 = COM 4 connector
17. J18 = System Fan / CPU Fan connector
18. J20 = System Fan / CPU Fan connector
19. J19 = Reset Switch
20. J21 = Power Switch
21. J10 = CD IN
22. PW1 = ATX Power connector
23. LED1 = HDD LED
24. LED3 = Lan LED
25. LED4 = Power LED
26. J15 = Printer connector
27. VGA1 = VGA monitor connector
28. MS1 = P/S 2 Mouse connector
29. Mic1 = Sound out put and Mic in connector
30. KB1 = P/S2 Keyboard Connector
31. Lan1 = Lan1 connector
32. Lan2 = Lan2 connector
33. USB1 = 2 x USB 1.1 connector

- 34. USB3 = 2 x USB 1.1 connector for E-POS 1000 TEC in the front panel
- 35. USB2 = 2 x USB 2.0 connector
- 36. IDE1 = Primary IDE Connector
- 37. IDE2 = Secondary IDE Connector
- 38. FDD = Floppy Disk Connector
- 39. BAT1 = CMOS Battery
- 40. DOC = Disk On Chip Socket

Chapter 6 AWARD BIOS SETUP

6.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II/III processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

6.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type...	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section which displays information on the currently highlighted item in the list.

Note: If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.

6.3 Standard CMOS Setup

“Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling.

If the board is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - AwardBIOS CMOS Setup Utility		
Standard CMOS Features		
Date (mm:dd:yy)	Thu, Mar 6 2003	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Primary Master	Press Enter 13020 MB	Press [Enter] to enter next page for detail hard drive settings
IDE Primary Slave	Press Enter None	
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, But Keyboard	
Base Memory	640K	
Extended Memory	506880K	
Total Memory	507904K	

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

- Day :** Sun to Sat
- Month :** 1 to 12
- Date :** 1 to 31
- Year :** 1994 to 2079

To set the date, highlight the “Date” field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour** : **00 to 23**
 Minute : **00 to 59**
 Second : **00 to 59**

To set the time, highlight the “Time” field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select ‘Manual’ to define the drive information manually. You will be asked to enter the following items.

CYLS : Number of cylinders
HEAD : Number of read/write heads
PRECOMP : Write precompensation
LANDZ : Landing zone
SECTOR : Number of sectors

The Access Mode selections are as follows:

 Auto
 Normal (HD < 528MB)
 Large (for MS-DOS only)
 LBA (HD > 528MB and supports Logical
 Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a key-board or disk error; it will stop for all others.

Select Display Device

The options for this field are Auto, CRT, LCD, CRT+LCD, TV, and CRT+TV.

6.4 Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix - AwardBIOS CMOS Setup Utility		
Advanced BIOS Features		
Virus Warning	Disabled	ITEM HELP
CPU Internal Cache	Enabled	Menu Level
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Enabled	Allows you choose the VIRUS warning

First Boot Device	Floppy
Second Boot Device	HDD-0
Third Boot Device	LS120
Boot Other Device	Enabled
Swap Floppy Drive	Disabled
Boot Up Floppy Seek	Enabled
Boot Up Numlock Status	On
Gate A20 Option	Fast
Typematic Rate Setting	Disabled
Typematic Rate (chars/Sec)	6
Typematic Delay (Msec)	250
Security Option	Setup
OS Select For DRAM>64MB	Non-OS2
Video BIOS Shadow	Enabled
C8000-CBFFF Shadow	Disabled
CC000-CFFFF Shadow	Disabled
D0000-D3FFF Shadow	Disabled
D4000-D7FFF Shadow	Disabled
D8000-DBFFF Shadow	Disabled
DC000-DFFFF Shadow	Disabled
Small Logo (EPA) Show	Enabled

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU Internal Cache / External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are *Enabled*.

CPU L2 Cache ECC Checking

This field enables or disables the ECC (Error Correction Checking) checking of the CPU level-2 cache. The default setting is *Enabled*.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

Boot Other Device

These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *Disabled*.

Boot Up Floppy Seek

When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to *250msec*.

Security Option

This field allows you to limit access to the System and Setup. The default value is **Setup**. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is *Non-OS/2*.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

Small Logo (EPA) Show

This field enables the showing of the EPA logo located at the upper right of the screen during boot up.

6.5 Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility		
Advanced Chipset Features		
DRAM Timing By SPD	Enabled	ITEM HELP
DRAM Clock	Host CLK	Menu Level
SDRAM Cycle Length	3	
Bank Interleave	Disabled	
Memory Hole	Disabled	
P2C/C2P Concurrency	Enabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Enabled	
Frame Buffer Size	16M	
AGP Aperture Size	64M	
AGP-4X Mode	Enabled	

AGP Driving Control	Auto
AGP Driving Value	DA
Select Display Device	CRT
TV Type	JP NTSC
Panel Type	07
OnChip USB	Enabled
USB Keyboard Support	Enabled
OnChip Sound	Auto
OnChip Modem	Disabled
CPU to PCI Write Buffer	Enabled
PCI Dynamic Bursting	Enabled
PCI Master 0 WS Write	Enabled
PCI Delay Transaction	Enabled
PCI#2 Access #1 Retry	Enabled
AGP Master 1 WS Write	Enabled
AGP Master 1 WS Read	Enabled

DRAM Timing by SPD

This field enables or disables the DRAM Timing based on SPD.

DRAM Clock

This item allows you to control the DRAM speed. The default setting is "Host CKL."

SDRAM Cycle Length

When synchronous DRAM is install , the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer. The default setting is "3."

Band Interleave

The interleave number of internal banks, can be set to 2 way, 4 way interleave or disabled. For VCM and 16Mb type dram chips, the bank interleave is fixed at 2 way interleave. When the dram timing is selected by SPD, it will be set by the value on SPD if the RAM module (DDR or SDR). The default setting is "Disabled."

Memory Hole

It is recommended to leave as disabled, although enabling 15M-16M can help with sound issues.

P2C / C2P Concurrency

Set to Disabled for best performance. You may set this to Enabled if you want any sort of system stability.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video RAM Cacheable

Selecting Enabled allows caching of the video RAM , resulting in better system performance. However , if any program is written to this memory area , a system error may result. The default setting is "Enabled."

Frame Buffer Size

This item allows you to control the VGA frame buffer size. The default setting is "16M."

AGP Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is **64M**.

AGP-4X Mode

The field enables or disables the AGP-4X mode of the integrated VGA function.

AGP Driving Control

This BIOS function allows you to adjust the control of the AGP driving force. It is set to Auto by default.

AGP Driving Value

This item enables an end user to manually select the AGP output buffer drive strength. KEY in a HEX number: Min=0000, Max=00FF.

Select Display Device

TV Type

Panel Type

This field sets the panel type that is supported by the system. Below are the selections for the different panel types:

Panel Type 0	640x480	18bit	TFT
Panel Type 1	800x600	18bit	TFT
Panel Type 2	1024x768	36bit	TFT
Panel Type 3	1280x1024	36bit	TFT
Panel Type 4	640x480	16bit	DSTN
Panel Type 5	800x600	16bit	DSTN
Panel Type 6	1024x768	16bit	DSTN
Panel Type 7	1024x768	18bit	1CH LVDS
Panel Type 8	640x480	18bit	TFT
Panel Type 9	800x600	18bit	TFT
Panel Type A	1024x768	18bit	TFT
Panel Type B	1280x1024	18bit	TFT
Panel Type C	1400x1050	36bit	2CH LVDS
Panel Type D	800x600	16bit	DSTN
Panel Type E	1024x768	16bit	DSTN
Panel Type F	1280x1024	16bit	DSTN

OnChip USB

The default setting is Enabled to enable the USB function on board.

USB Keyboard Support

Enable this if you are using a USB keyboard.

OnChip Sound

This field can be set as Auto or disabled.

OnChip Modem

This field can be set as Auto or disabled.

CPU to PCI Write Buffer

This controls the CPU write buffer to the PCI bus. If this buffer is disabled, the CPU writes directly to the PCI bus. The default setting is **Enabled**.

PCI Dynamic Bursting

This option controls the PCI write buffer. If this is enabled, then every write transaction on the PCI bus goes straight to the write buffer. Burst transactions are then sent on their way as soon as there are enough to send in a single burst.

PCI Master 0 WS Write

This function determines whether there's a delay before any writes to the PCI bus. If this is enabled, then writes to the PCI bus are executed immediately (with zero wait states), as soon as the PCI bus is ready to receive data. But if it is disabled, then every write transaction to the PCI bus is delayed by one wait state. It's recommended to enable this for faster PCI performance.

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

PCI#2 Access #1 Retry

This BIOS feature is linked to the CPU to PCI Write Buffer. Normally, the CPU to PCI Write Buffer is enabled. All writes to the PCI bus are, as such, immediately written into the buffer, instead of the PCI bus. This frees up the CPU from waiting till the PCI bus is free. The data are then written to the PCI bus when the next PCI bus cycle starts.

AGP Master 1 WS Write/Read

When enabled a single wait state is used when writing/reading to the AGP bus. When disabled a 2 wait state is used. For optimal performance set this to enabled. For improved stability set it to disabled.

6.6 Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility		
Integrated Peripherals		
OnChip IDE Channel 0	Enabled	ITEM HELP
OnChip IDE Channel 1	Enabled	Menu Level
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	

Secondary Slave PIO	Auto
Primary Master UDMA	Auto
Primary Slave UDMA	Auto
Secondary Master UDMA	Auto
Secondary Slave UDMA	Auto
Init Display First	PCI Slot
IDE HDD Block Mode	Enabled
Onboard FDD Controller	Enabled
Onboard Serial Port 1	3F8/IRQ4
Onboard Serial Port 2	2F8/IRQ3
UART 2 Mode	Standard
IR Function Duplex	Half
TX , RX inverting enable	No, Yes
Onboard Parallel Port	378/IRQ7
Onboard Parallel Mode	Normal
ECP Mode Use DMA	3
Parallel Port EPP Type	EPP 1.9
Onboard Serial Port 3	3E8H
Serial Port 3 Use IRQ	IRQ5
Onboard Serial Port 4	2E8H
Serial Port 4 Use IRQ	IRQ10
Onboard Legacy Audio	Enabled
Sound Blaster	Disabled
SB I/O Base Address	220H
SB IRQ Select	IRQ 5
SB DMA Select	DMA 1
MPU-401	Disabled
MPU-401 I/O Address	330-333H
Game Port (200-207H)	Disabled

OnChip IDE Channel 0 / 1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

IDE Prefetch Mode

These field enables/disables the prefetch buffers in the PCI IDE controller. The prefetch buffers are used as a temporary storage place as data is transferred from one location to another.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

Init Display First

This field allows the system to initialize first the VGA card on chip or the display on the PCI Slot. By default, the *PCI Slot* VGA is initialized first.

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

Onboard FDD Controller

Select *Enabled* if your system has a floppy disk controller installed on the Embedded Board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select *Disabled* in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port/IRQ

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Serial Port 3	3E8H/IRQ5
Serial Port 4	2E8H/IRQ10
Parallel Port	378H/IRQ7

UART 2 Mode

This item allows you to determine which Infra Red (IR) function of onboard I/O chip. The options are *Standard*, *IrDA*, and *ASKIR*.

IR Function Duplex

This item allows you to select the IR half/full duplex function. The default setting is "Half."

TX,RX inverting enable

This item allows you to enable the TX , RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system. The default setting is "No , Yes."

Onboard Parallel Mode

There are four options the setting "EPP"(Enhanced Parallel Port), "ECP"(Extended Capabilities Port), "ECP/EPP" and "Normal" Change the mode from "Normal" (default) to the enhanced mode only if your peripheral device can support it.

ECP Mode Use DMA

When the onboard parallel port is set to ECP mode, the parallel port has the option to use DMA "3" (default) or DMA "1."

Parallel Port EPP Type

This field allows you to determine parallel port mode function.

SPP	Standard Printer Port
EPP	Enhanced Parallel Port
ECP	Extended Capabilities Port

Onboard Legacy Audio

Enable or disable the on board legacy audio with this option. If enabled, some audio options will appear.

Sound Blaster

This item enabled/disabled the onboard Sound Blaster. The default setting is "Disabled."

SB I/O Base Address

This item selects the Sound Blaster I/O Base Address. The default setting is "220H."

SB IRQ Select

This item selects the Sound Blaster IRQ. The default setting is "IRQ5."

SB DMA Select

This item selects the Sound Blaster DMA. The default setting is "DMA1."

MPU-401

This item enabled/disabled on-board MPU-401. The default setting is "Disabled."

MPU-401 I/O Address

This item selects MPU-401 I/O Address. The default setting is "330-333H."

Game Port (200-207H)

This item selects the Game Port. The default setting is "Game Port (200-207H)."

6.7 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	Enabled	ITEM HELP
Power Management	Press Enter	Menu Level
ACPI Suspend Type	S1(POS)	
PM Control by APM	Yes	
Video Off Option	Suspend -> Off	
Video Off Method	V/H Sync + Blank	
Modem Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
State After Power Failure	On	
Wake Up Events	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

Power Management	User Define	ITEM HELP
HDd Power Down	Disabled	Menu Level
Doze Mode	Disabled	
Suspend Mode	Disabled	

Phoenix - AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect

VGA	OFF	ITEM HELP
LPT & COM	LPT / COM	Menu Level
HDD & FDD	ON	
PCI Master	OFF	
Modem Ring Resume	Disabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
Resume Time (hh:mm:ss)	0 : 0 : 0	
Primary INTR	ON	
IRQs Activity Monitoring	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring

IRQ3	(COM 2)	Enabled	ITEM HELP
IRQ4	(COM 1)	Enabled	Menu Level
IRQ5	(LPT 2)	Enabled	
IRQ6	(Floppy Disk)	Enabled	
IRQ7	(LPT 1)	Enabled	
IRQ8	(RTC Alarm)	Disabled	
IRQ9	(IRQ2 Redir)	Disabled	
IRQ10	(Reserved)	Disabled	
IRQ11	(Reserved)	Disabled	
IRQ12	(PS/2 Mouse)	Enabled	
IRQ13	(Coprocessor)	Enabled	
IRQ14	(Hard Disk)	Enabled	
IRQ15	(Reserved)	Disabled	

ACPI Function

Use this option to enable or disable the ACPI function

Power Management

When you press Enter while selecting this field, the menu for Power Management appears. The following are the fields in this menu.

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Saving	Minimum power management
Max. Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr.
(Default)	Except for HDD Power Down which ranges from 1 min. to 15 min.

Under this option, you can also configure other features such HDD Power Down, Doze Mode and Suspend Mode.

HDD Power Down

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active. Control of this mode is independent of the Power Management mode selected previously.

Doze Mode

After the selected period of system inactivity, the CPU clock runs at slower speed while all other devices still operate at full speed.

Suspend Mode

This option decides when to shutdown video for power saving. You can select it as always on or turn off video when system enters suspend mode.

ACPI Suspend Type

Use this item to define how your system suspends. If set to S1(POS) (default), the suspend mode is equivalent to a software power down. If set to S3(STR), the suspend mode is a suspend to RAM the system shuts down with the exception of a refresh current to the system memory.

PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

Video Off Option

This option decides when to shutdown video for power saving. You can select it as always on or turn off video when system enters suspend mode.

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is 3.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds. The default value is *Instant Off*.

State After Power Failure

This item to set the ATX power supply status when power resume after unexpected power fail. When off is selected, power supply will maintain on soft-off status, when power is resume. When on is selected, power supply will turn on, and when

Auto is selected, power supply will maintain on the status before unexpected power fail. The default is "Off."

Wake Up Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

6.8 PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix - AwardBIOS CMOS Setup Utility PnP/PCI Configurations		
PNP OS Install	No	ITEM HELP
Reset Configuration Data	Disabled	Menu Level
Resources Controlled By	Auto [ESCD]	Default is Disabled.
IRQ Resources	Press Enter	Select Enabled to reset
DMA Resources	Press Enter	Extended System
PCI/VGA Palette Snoop	Disabled	Configuration Data
Assign IRQ for VGA	Disabled	(ESCD) when you exit
Assign IRQ for USB	Disabled	Setup if you have installed
		a new add-on and the
		system reconfiguration
		has caused such a serious
		conflict that the OS
		cannot boot

PNP OS Install

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is *No*.

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is *Disabled*.

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

IRQ/DMA Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ3/4/5/7/9/10/11/12/14/15 assigned to

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification ; PCI/ISA PnP (default) for devices is compliant with the Plug-and Play standard whether designed for PCI or ISA bus architecture.

DMA 0/1/3/5/6/7 assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt : Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI/ISA PnP(default) Devices compliant with the Plug-and-Play standard , whether designed for PCI or ISA bus architecture.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

Assign IRQ for VGA/USB

By default, this fields are Enabled.

6.9 PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Phoenix - AwardBIOS CMOS Setup Utility		
PC Health Status		
CPU Warning Temperature	60°C/140°F	ITEM HELP
Current CPU Temp.	34°C/95°F	
Current System Temp.	28°C/82°F	
Current CPUFAN1 Speed	4166 RPM	
Current CPUFAN2 Speed	0 RPM	
Vcore	1.50V	
2.5(V)	2.48V	
3.3(V)	3.28V	

5(V)	5.20V	
12(V)	11.94V	

CPU Warning Temperature

This field sets the temperature threshold that when reached, the system would give an audible warning.

Current CPU Temp

Displays the current CPU temperature.

Current System Temp.

Displays the current system temperature.

Current CPUFAN1/2/ Speed

Displays the current speed of the CPU, chassis , and power fan speed in RPMs.

Vcore

The voltage level of the CPU(Vcore).

2.5V , 3.3V , 5V , 12V

The voltage level of the switching power supply.

6.10 Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

Phoenix - AwardBIOS CMOS Setup Utility		
Frequency/Voltage Control		
VIA C3 Clock Ratio	Default	ITEM HELP
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	
CPU Host Clock (CPU/PCI)	Default	

VIA C3 Clock Ratio

Auto Detect DIMM/PCI Clk

This field enables or disables the auto detection of the DIMM/PCI clock. The default setting is *Disabled*.

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is *Disabled*. This field is for CE testing use only.

CPU Host Clock (CPU/PCI)

The Host CPU/PCI Clock has a default setting of *Default* which automatically detects the systems host CPU clock and PCI clock. You can also use this parameter to over clock your system. However, it is important to note that over clocking the system/CPU can cause your system to become unstable or crash.

6.11 Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

6.12 Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

6.13 Set Supervisor/User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

6.14 Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

6.15 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

6.16 POST Messages

During the Power On Self-Test (POST), if the BIOS detects an error requiring you to do something to fix, it will either sound a beep code or display a message.

If a message is displayed, it will be accompanied by:

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

POST Beep

Currently there are two kinds of beep codes in BIOS. This code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps. The other code indicates that your DRAM error has occurred. This beep code consists of a single long beep repeatedly.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list includes messages for both the ISA and the EISA BIOS.

CMOS BATTERY HAS FAILED

CMOS battery is no longer functional. It should be replaced.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER

No boot device was found. This could mean that either a boot drive was not detected or the drive does not contain proper system boot files. Insert a system disk into Drive A: and press <Enter>. If you assumed the system would boot from the hard drive, make sure the controller is inserted correctly and all cables are properly attached. Also be sure the disk is formatted as a boot device. Then reboot the system.

DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP

Type of diskette drive installed in the system is different from the CMOS definition. Run Setup to reconfigure the drive type correctly.

DISPLAY SWITCH IS SET INCORRECTLY

Display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

DISPLAY TYPE HAS CHANGED SINCE LAST BOOT

Since last powering off the system, the display adapter has been changed. You must configure the system for the new display type.

EISA Configuration Checksum Error PLEASE RUN EISA CONFIGURATION UTILITY

The EISA non-volatile RAM checksum is incorrect or cannot correctly read the EISA slot. This can indicate either the EISA non-volatile memory has become corrupt or the slot has been configured incorrectly. Also be sure the card is installed firmly in the slot.

EISA Configuration Is Not Complete PLEASE RUN EISA CONFIGURATION UTILITY

The slot configuration information stored in the EISA non-volatile memory is incomplete.

Note: When either of these errors appear, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

ERROR ENCOUNTERED INITIALIZING HARD DRIVE

Hard drive cannot be initialized. Be sure the adapter is installed correctly and all cables are correctly and firmly attached. Also be sure the correct hard drive type is selected in Setup.

ERROR INITIALIZING HARD DISK CONTROLLER

Cannot initialize controller. Make sure the cord is correctly and firmly installed in the bus. Be sure the correct hard drive type is selected in Setup. Also check to see if any jumper needs to be set correctly on the hard drive.

FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT

Cannot find or initialize the floppy drive controller. make sure the controller is installed correctly and firmly. If there are no floppy drives installed, be sure the Diskette Drive selection in Setup is set to NONE.

Invalid EISA Configuration

PLEASE RUN EISA CONFIGURATION UTILITY

The non-volatile memory containing EISA configuration information was programmed incorrectly or has become corrupt. Re-run EISA configuration utility to correctly program the memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

KEYBOARD ERROR OR NO KEYBOARD PRESENT

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

If you are purposely configuring the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. This will cause the BIOS to ignore the missing keyboard and continue the boot.

Memory Address Error at ...

Indicates a memory address error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

Memory parity Error at ...

Indicates a memory parity error at a specific location. You can use this location along with the memory map for your system to find and replace the bad memory chips.

MEMORY SIZE HAS CHANGED SINCE LAST BOOT

Memory has been added or removed since the last boot. In EISA mode use Configuration Utility to reconfigure the memory configuration. In ISA mode enter Setup and enter the new memory size in the memory fields.

Memory Verify Error at ...

Indicates an error verifying a value already written to memory. Use the location along with your system's memory map to locate the bad chip.

OFFENDING ADDRESS NOT FOUND

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem cannot be isolated.

OFFENDING SEGMENT:

This message is used in conjunction with the I/O CHANNEL CHECK and RAM PARITY ERROR messages when the segment that has caused the problem has been isolated.

PRESS A KEY TO REBOOT

This will be displayed at the bottom screen when an error occurs that requires you to reboot. Press any key and the system will reboot.

PRESS F1 TO DISABLE NMI, F2 TO REBOOT

When BIOS detects a Non-maskable Interrupt condition during boot, this will allow you to disable the NMI and continue to boot, or you can reboot the system with the NMI enabled.

RAM PARITY ERROR - CHECKING FOR SEGMENT ...

Indicates a parity error in Random Access Memory.

Should Be Empty But EISA Board Found

PLEASE RUN EISA CONFIGURATION UTILITY

A valid board ID was found in a slot that was configured as having no board ID.

NOTE; When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Should Have EISA Board But Not Found
PLEASE RUN EISA CONFIGURATION UTILITY

The board installed is not responding to the ID request, or no board ID has been found in the indicated slot.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

Slot Not Empty

Indicates that a slot designated as empty by the EISA Configuration Utility actually contains a board.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

SYSTEM HALTED, (CTRL-ALT-DEL) TO REBOOT ...

Indicates the present boot attempt has been aborted and the system must be rebooted. Press and hold down the CTRL and ALT keys and press DEL.

Wrong Board In Slot
PLEASE RUN EISA CONFIGURATION UTILITY

The board ID does not match the ID stored in the EISA non-volatile memory.

NOTE: When this error appears, the system will boot in ISA mode, which allows you to run the EISA Configuration Utility.

FLOPPY DISK(S) fail (80) → Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40) → Floppy Type mismatch.

Hard Disk(s) fail (80) → HDD reset failed

Hard Disk(s) fail (40) → HDD controller diagnostics failed.

Hard Disk(s) fail (20) → HDD initialization error.

Hard Disk(s) fail (10) → Unable to recalibrate fixed disk.

Hard Disk(s) fail (08) → Sector Verify failed.

Keyboard is locked out - Unlock the key.

BIOS detect the keyboard is locked. P17 of keyboard controller is pulled low.

Keyboard error or no keyboard present.

Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop.

System will repeat POST procedure infinitely while the P15 of keyboard controller is pull low. This is also used for M/B burn in test.

BIOS ROM checksum error - System halted.

The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail.

BIOS reports the memory test fail if the onboard memory is tested error.

6.17 POST Codes

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers

POST (hex)	Description
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.

POST (hex)	Description
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBIN able by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead. 3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information. 4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 5. Early PCI initialization: -Enumerate PCI bus number -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0.
24h	Reserved
25h	Reserved

POST (hex)	Description
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed. 5. Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved

POST (hex)	Description
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved

POST (hex)	Description
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved

POST (hex)	Description
73h	(Optional Feature) Enter AWDFLASH.EXE if : -AWDFLASH is found in floppy drive. -ALT+F2 is pressed
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM.....
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved
7Fh	1. Switch back to text mode if full screen logo is supported. -If errors occur, report errors & wait for keys -If no errors occur or F1 key is pressed to continue: ♦Clear EPA or customization logo.
80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.

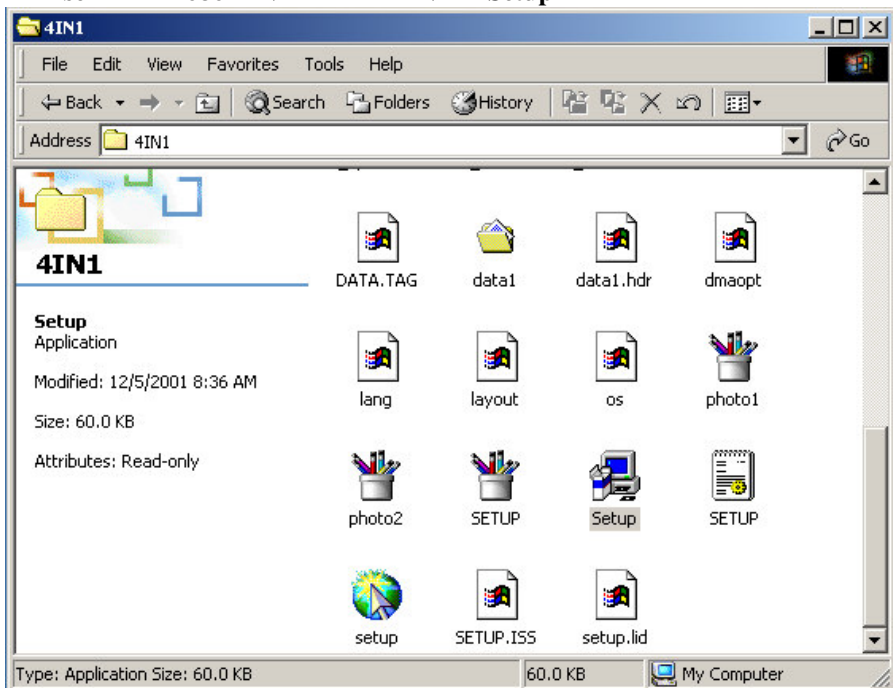
POST (hex)	Description
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

Chapter 7 Driver Installation

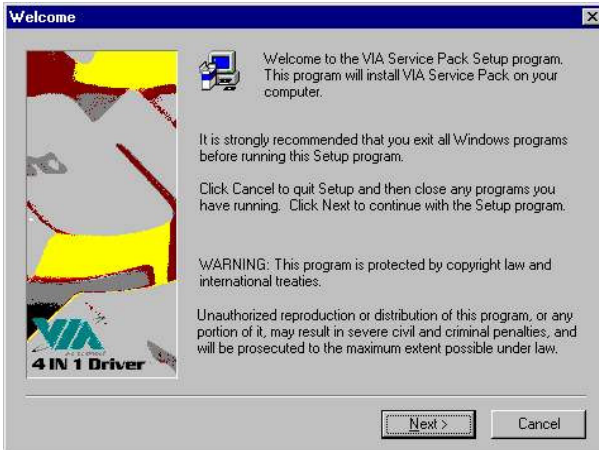
7.1 VIA 4 in 1 Drivers Installation

Follow the steps below to proceed with the VIA 4 in 1 drivers installation.

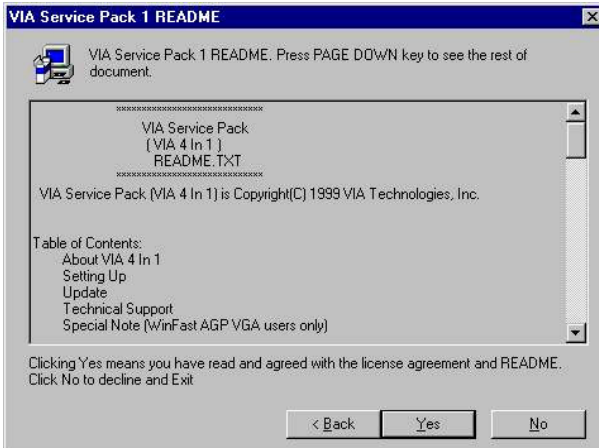
1. In your Windows operating system, click **My Computer** → **Compact Disc** → **MFI-686** → **VIA4in1** → **4IN1** → **Setup**



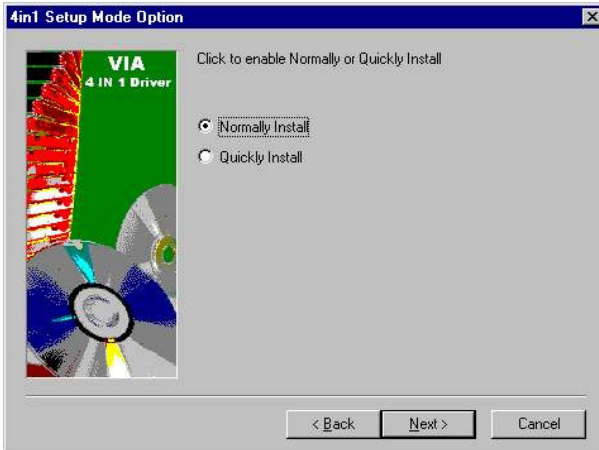
2. When the Welcome screen appears, click Next.



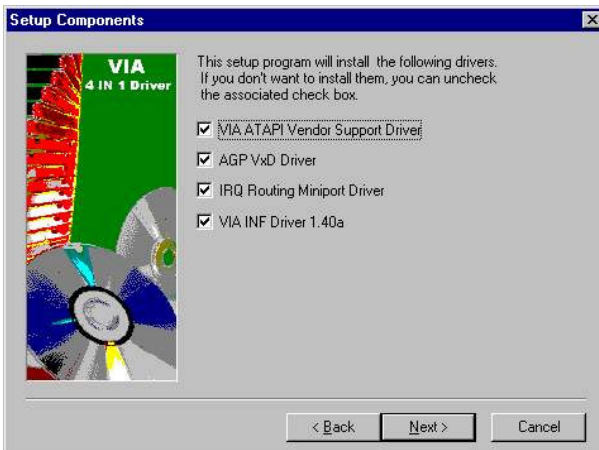
3. Click Next to agree with the license agreement statement and to continue.



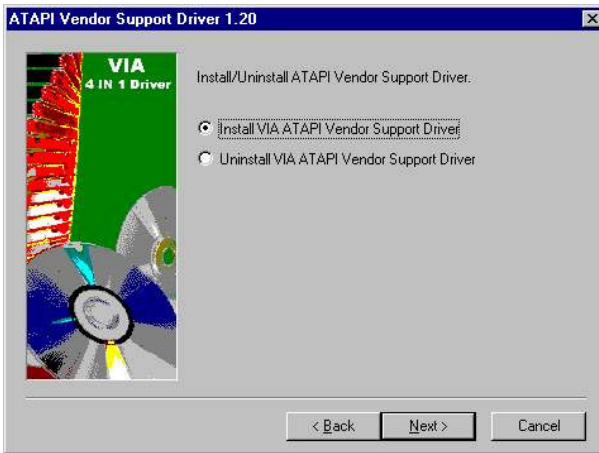
4. Select the Setup Mode and click Next to continue.



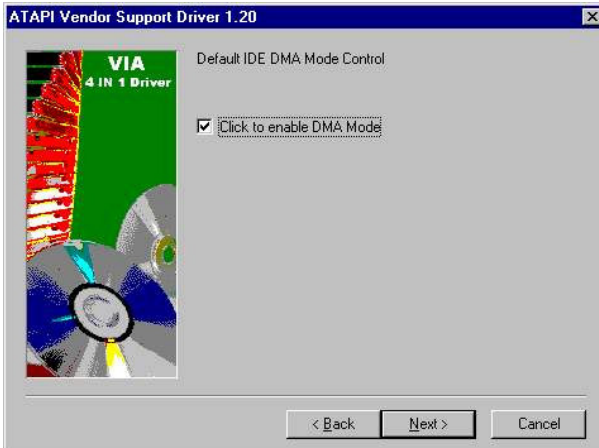
5. Click Next to install the drivers listed.



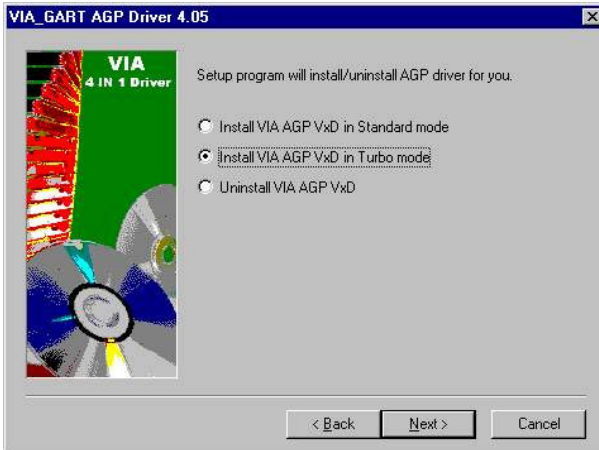
6. Click Next to install the VIA ATAPI Vendor Support Driver.



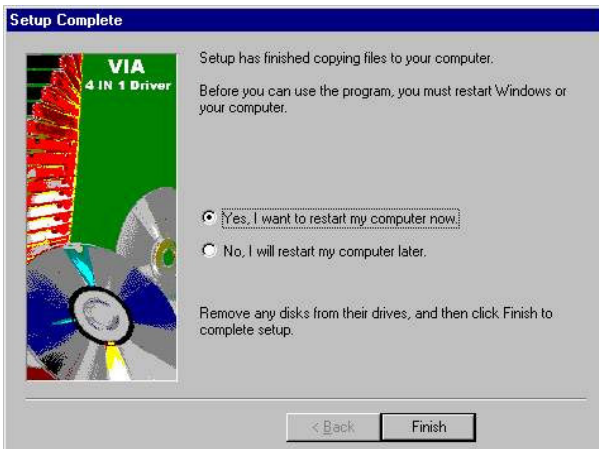
7. Click Next to enable DMA Mode.



8. Click Next to install the VIA AGP VxD in Turbo mode.



9. Click Finish to restart the computer and for changes to take effect.

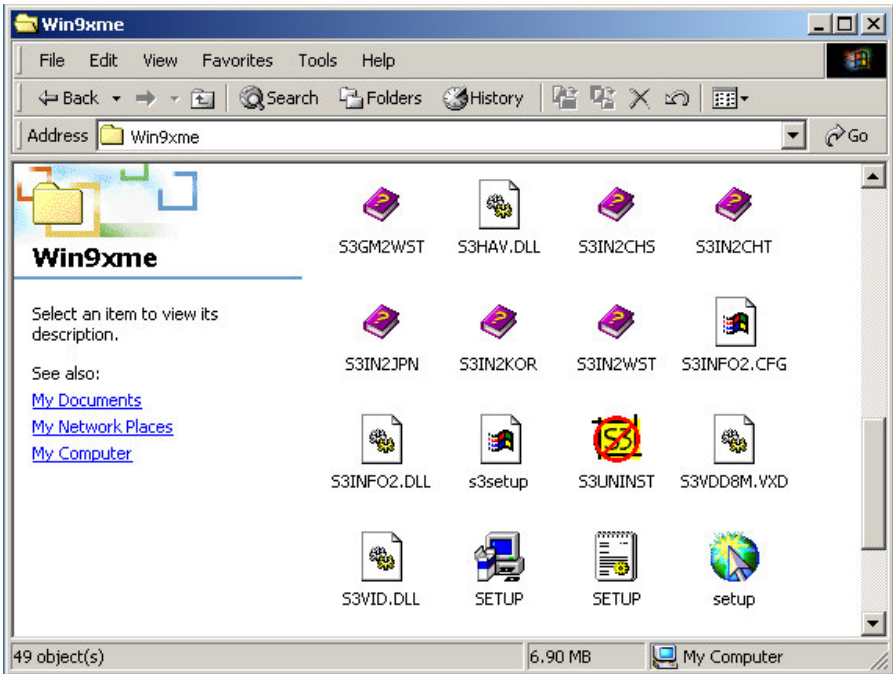


7.2 VGA Drivers Installation

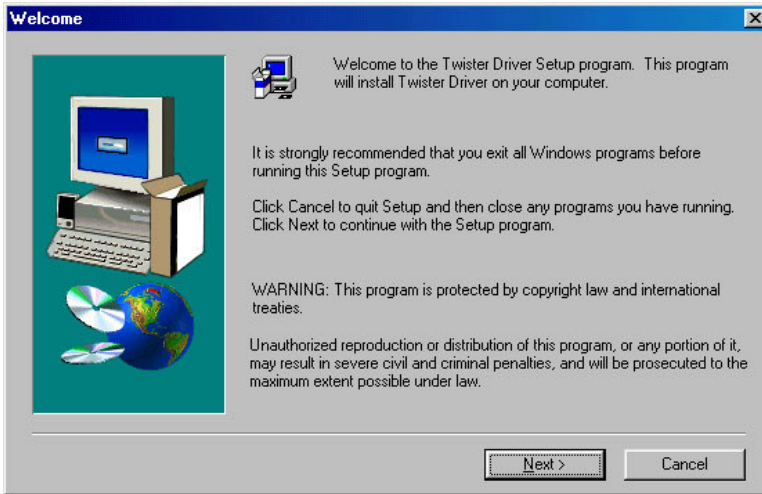
After installing the VIA 4 in 1 drivers, you may now install the VIA 8606 VGA Driver. Follow the steps below to proceed with the installation.

NOTE: Before installing the VGA drivers on Windows NT 4.0, you need to install Service Pack 3 or above.

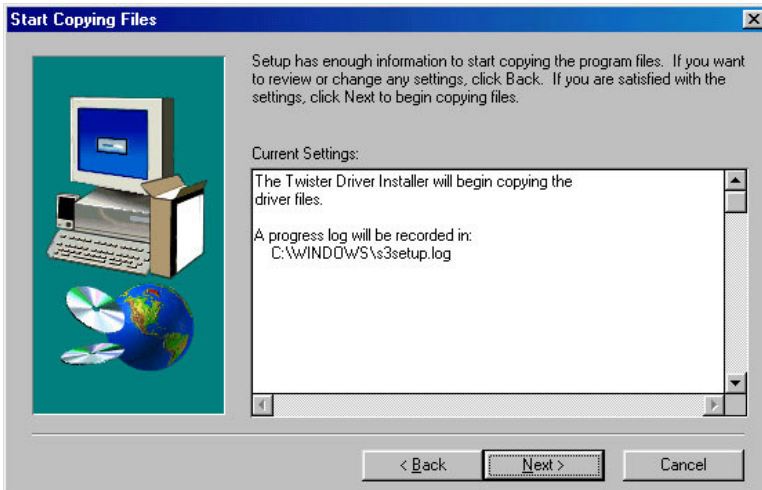
1. In your Windows operating system, click **My Computer**→ **Compact Disc**→ **MFI-686**→ **Via8606 VGA**→ **Windrv**



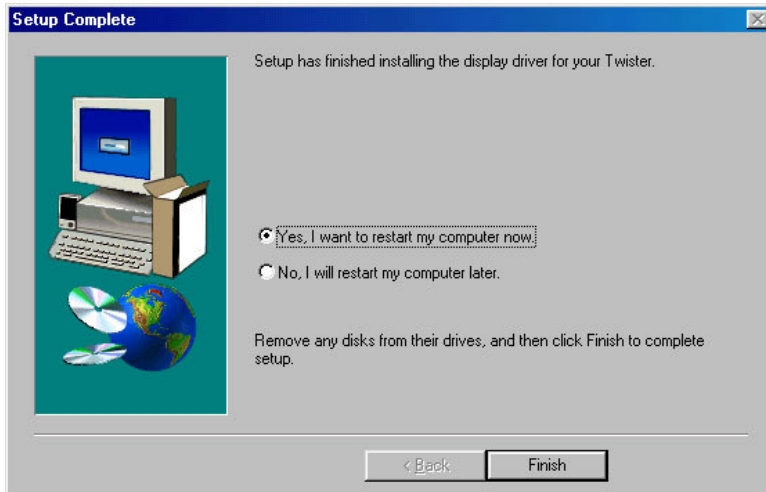
2. The welcome screen of the Twister Driver Setup will appear. Click Next to continue.



3. When the Start Copying Files screen appears, click Next to start copying the program files.



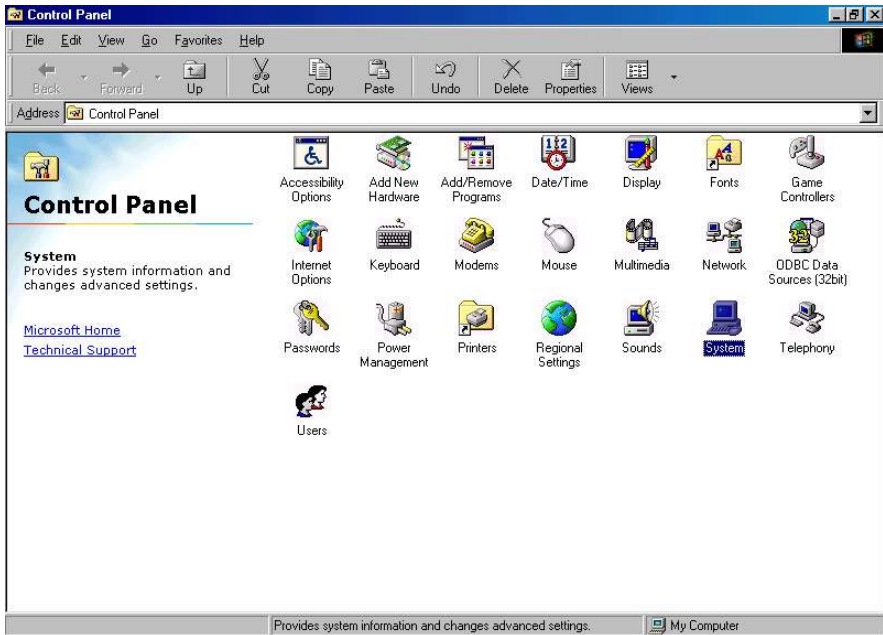
4. After file copying is done, the VGA driver installation is now completed. Click Finish to restart the computer and for changes to take effect.

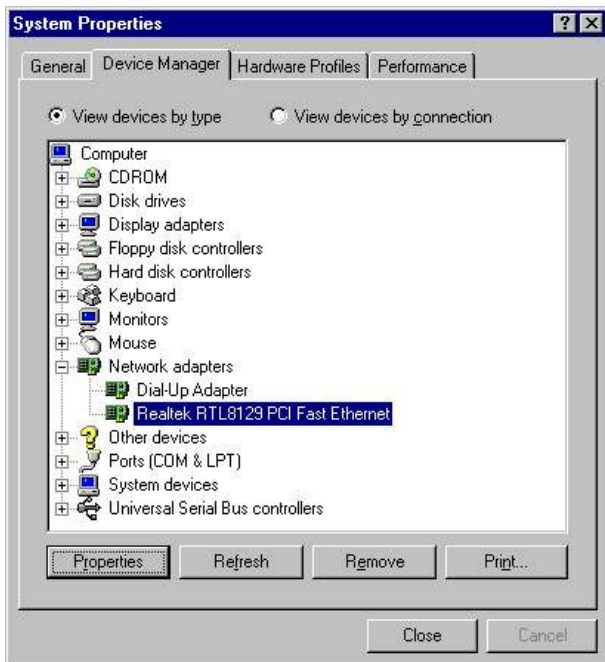


7.3 LAN Drivers Installation

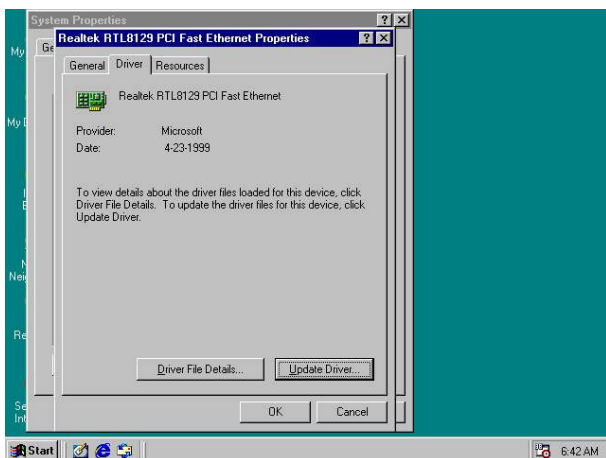
Follow the steps below to proceed with the LAN drivers installation.

1. In your Windows operating system, click Start → Settings → Control Panel → System Properties.

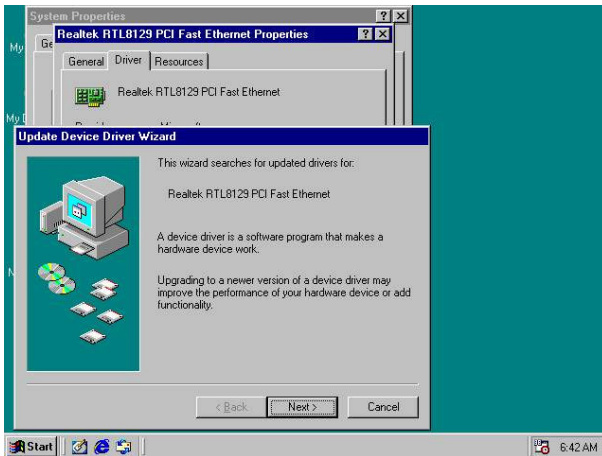




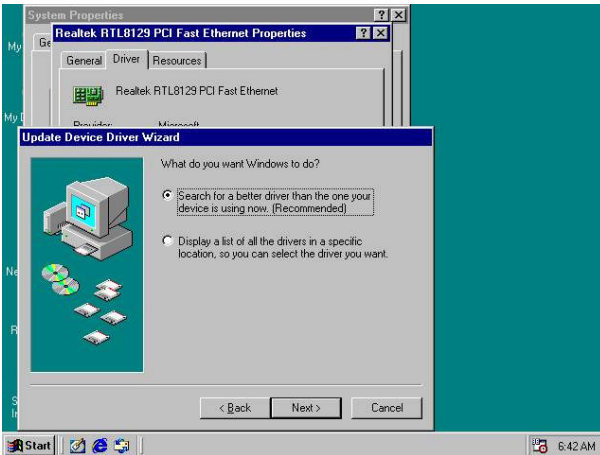
2. Under System Properties, click on the Device Manager tab. Double click on Realtek 8129 PCI Fast Ethernet. Click the Driver tab as shown. Now click the Update Driver button.



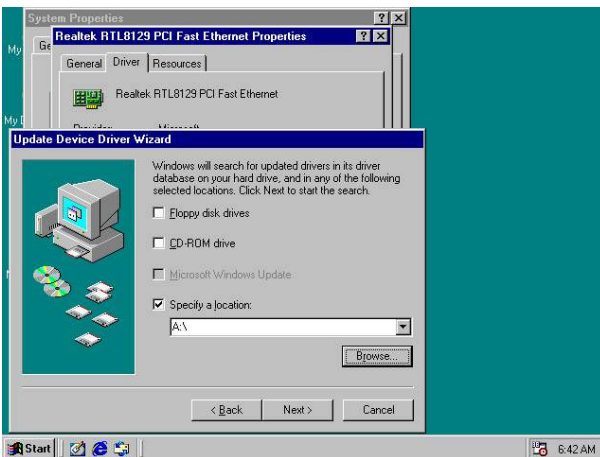
3. When the Update Device Drivers Wizard appears, click Next to continue.



4. Click Next to “Search for a better driver than the one your device is using now. (Recommended)”.



5. Click “Specify a location” and click Next to continue.

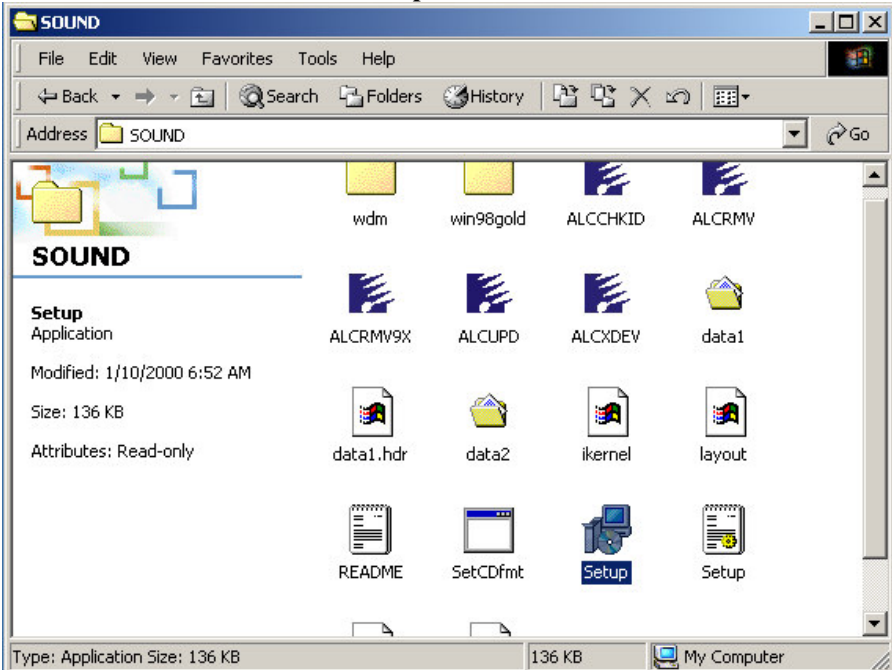


7.4 Audio Drivers Installation

NOTE: Please install the VGA drivers before proceeding with the audio drivers installation.

Follow the steps below to proceed with the audio drivers installation.

1. In your Windows operating system, click **My Computer**→ **Compact Disc**→ **MFI-686**→ **SOUND**→ **Setup**



2. Under the Welcome screen, click Next to agree with the license agreement statement and to continue.

Appendix

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports

3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required.

The following table shows the IRQ used by the devices on board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Serial Port 3
IRQ11	Serial Port 4
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

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